

REMARKS

Claims 1 through 38 are pending in this application. Claims 1, 9, 15, 32-34 and 38 are amended in several particulars for purposes of clarity in accordance with current Office policy, to assist the examiner and to expedite compact prosecution of this application.

I. Election/Restrictions

The Examiner stated that the applicant's traverse on the grounds that it is not shown that a serious burden exists on the examiner is not found to be persuasive because applications that claim inventions in different statutory categories of invention, only a one-way distinctness is generally required to support a restriction requirement. See MPEP 806.05(f). Consequently, the Examiner states that in the instant case, neither a showing of undue burden, nor that the claims are both independent and distinct is required to support a restriction requirement.

First the Examiner's use of the form paragraph that one-way distinctness is generally required is a general statement in itself. Generally required does not mean that it is itself a proof of restriction. Moreover, generally does not mean that it applies to all cases.

Respectfully, the Examiner is incorrect in a showing of undue burden is not necessary as MPEP §803 clearly states that "the examiner must show that the (A) The inventions must be independent (see MEP § 802.01, § 806.04, § 808.01) or distinct as claimed (see MPEP §806.05 - §806.05(i)); **and** (B) There must be a serious burden on the examiner if restriction is required".

The Examiner states that furthermore, the separate statutory classification of invention, and the different fields of search, are indicia of an undue burden. However, the Applicant states that the separate class search is necessary for a complete examination of the present invention and therefore, is not in itself undue burden.

The Examiner states that a complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action. MPEP 821.01 states that when preparing a final office action that the form paragraph for cancellation or other appropriate action is to be referred to. Here, it is only final in terms of the restriction requirement.

In addition, as mentioned in 37 CFR 1.144, the other appropriate action is filing a petition, "After a final requirement for restriction, the applicant, in addition to making any reply due on the remainder of the action, may petition the Director to review the requirement. Petition may be deferred until after final action on or allowance of claims to the invention elected, but must be filed not later than appeal. A petition will not be considered if reconsideration of the requirement was not requested."

Therefore, as mentioned above, a reconsideration is requested from the Examiner as mentioned above and the Applicant reserves the right to file a petition to the final requirement for restriction.

In addition, cancellation of the non-elected claims are not appropriate at this time because of according to MPEP §821.04 in the *In re Ochiai* rejoinder, even when there is even a proper restriction between product and process claims and when the product claims are elected, and the

product claims are allowable, the process claims that include all the limitations of the allowable product claims would also be allowable. Therefore, claim 18-23 can be allowed because of rejoinder under MPEP §821.04 when the product claims are allowed and include all the limitations of the allowable product claims of any one of claims 1-17, or 24-38 are allowed. Therefore, the Applicant reserves the right to rejoin the non-elected claims and therefore, is not required to cancel the non-elected claims at this time.

II. Claim Rejections - 35 USC § 102

No claim is anticipated under 35 U.S.C. §102 (b) unless all of the elements are found in exactly the same situation and united in the same way in a single prior art reference. As mentioned in the **MPEP §2131**, “a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Every element must be literally present, arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (CAFC 1989). The identical invention must be shown in as complete detail as is contained in the patent claim. *Id.*, “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970), and MPEP 2143.03.

A. Claims 1, 5-6, 8-10, 15, 24-29, 31-33, 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Uemura et al (US 6239547 B1). The Applicant respectfully traverses.

1. With respect to Claim 1, the Examiner states that Uemura discloses a base layer (conductive adhesive, 422), the base layer connecting the carbon nanotube layer to the one of the first and second substrates on which the electron emission sources are provided and having conductivity for applying a voltage to the carbon nanotube layer required for the emission of electrons, and with the base layer having a predetermined thickness, and the carbon nanotube layer being provided on the base layer in a state substantially un-mixed with the base layer (Figure 4).

First, Uemura does not indicate a predetermined thickness for the base layer. As seen in a close-up of layer 422 on figure 4 indicates that the thickness is not predetermined but that there is no restriction made for the thickness as it has no sort of order.

In addition, Uemura fails to disclose the carbon nanotube layer being provided on the base layer in a state substantially un-mixed with the base layer. The Examiner refers to figure 4, but the magnified view of layers 421 and 422 show instead the carbon nanotubes being embedded in the conductive adhesive 422. It is clear that the base layer is not substantially un-mixed with the base layer, but that it is actually substantially mixed.

Furthermore, specifically in the **MPEP §2125** under the heading “DRAWINGS AS PRIOR ART” and under the subheading “PROPORTIONS OF FEATURES IN A DRAWING ARE NOT EVIDENCE OF ACTUAL PROPORTIONS WHEN DRAWINGS ARE NOT TO SCALE”, the MPEP states “When the reference does not disclose that the drawings are to scale and is silent as to dimensions, **arguments based on measurement of the drawing features are of little value.**

However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977). Therefore, the figure 4 in itself cannot be properly relied upon as indication of no substantial mixing as the Examiner indicates. There is no indication concerning the exposure of the carbon nanotubes and its relationship with the base layer. However, concerning figure 7 in col. 12, lines 39-48, Uemura indicates that the bundles of carbon nanotubes 704 rarely expose on the surface of 710 and as shown in figures 7A, 7C and 7E, the bundles of carbon nanotubes are substantially embedded in the base layer 703.

2. With respect to Claim 8, Uemura teaches that the base layer (703, Figure 7) has an outer surface that includes prominences and depressions (see Figure 7).

The Examiner relies on figure 7 concerning prominences and depressions, but as mentioned in col. 3, lines 58-60 state that figures 7A, C and F are concerning the method of manufacturing the electron emitting source according to the present invention. Figure 7A and C are still during the manufacturing process before completion. At figure 7F, any possible protrusions and prominences are not entirely clear. A rough set of conductive silver particles are included, but the prominences and protrusions are not entirely disclosed. Col. 12, line 34 even states that the carbon nanotube bundles are uniformly dispersed. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient.” *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981).

3. With respect to Claim 9, Uemura teaches that the base layer includes spherical particles with a diameter of 0.05 to 5 μm (Col. 11, lines 65-67).

However, as amended, Uemura does not disclose the spherical particles being below the carbon nanotube layer since in figure 7E it shows that the carbon nanotube layer is embedded in the spherical particles 703. The amendment to claim 9 is supported by the entirety of the drawings and specification, including for example figure 3.

4. With respect to Claim 15, the Examiner states that claim is rejected over the reasons stated in the rejections of claim 1 & 9.

However, as mentioned in claim 1, Uemeda has the carbon nanotube layer clearly mixed in the base layer as seen in both figures 4 and 7E.

In addition, as amended, claim 15 states that the base layer having an outer surface that includes prominences and depressions by spherical particles with a diameter in the range of 0.05 to 5 μm accommodating corresponding prominences and depressions by the carbon nanotube layer. However, as seen in Uemeda, the carbon nanotubes do not have a corresponding prominances and depressions.

5. With respect to Claim 24, the Examiner states that the claim is rejected over the reasons stated in the rejection of claim 1. However, as shown above, the carbon nanotube layer is quite clearly substantially mixed as seen in figure 7E and the magnified sectional view of figure 4 and the related disclosure states otherwise or makes no specific disclosure as to the mixture of the base layer and the carbon nanotube layer.

6. With respect to Claim 31, the Examiner stated that the claim is rejected over the reasons stated in the rejection of claim 24 & 8.

However as mentioned concerning claim 8, the prominences and depressions are not entirely clear as seen in figure 7E and therefore, there is no disclosure pertaining to such prominences and depressions.

7. With respect to Claim 38, the Examiner states that claim is rejected over the reasons stated in the rejections of claim 24 & 9. In addition to the arguments for claims 24 and 9, as amended, the prominences and depressions of the base layer of Uemeda fail to disclose accommodating the same prominences and depressions in the carbon nanotube layers.

The entirety of the specification and drawings of the present invention support the amendment to claim 38 including for example figure 3.

8. Concerning the rejection of claim 5, the Examiner later resorts to combining Uemeda with Nakada in order to reject claim 5 again under 35USC§103, thereby indicating that Uemeda alone may not have all the features of the present invention even though the Examiner is modifying Nakada with Uemeda. If Uemeda alone cannot properly reject claim 5, then it would indicate otherwise when Nakada has to be modified with Uemeda.

B. Claims 1-2, 4, 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakada et al. (US 6455989 B1). The Applicant respectfully traverses.

1. With respect to Claim 1, the Examiner states that Nakada teaches discloses a field emission display (Figure 3), comprising: the electron emission sources including a carbon nanotube layer (Figure 6, 16a) and a base layer (projecting structure 161), the base layer connecting the carbon nanotube layer to the one of the first and second substrates on which the electron emission sources are provided and having conductivity for applying a voltage to the carbon nanotube layer required for the emission of electrons, and with the base layer having a predetermined thickness, and the carbon nanotube layer being provided on the base layer in a state substantially un mixed with the base layer (Figure 6).

Referring to the Claims and FIG. 6 of Nakada, the metal made projecting structure 161 is formed on the first electrode (cathode electrode) 13 within each of the fine holes 17, and has trapezoidal shape in cross-section. The electron emission portion 16 made from an electron emission material is formed on the upper surface of the projecting structure 161. A projecting body composed of carbon nano-tubes 16a is provided on the surface of the electron emission portion 16.

The following includes a list of differences between Claim 1 of the present invention and Nakada.

First, the projecting structure 161 of Nakada is for reducing the distance between the electron emission portion 16 and the second electrode (gate electrode) 17, thereby increasing electron emission efficiency of the electron emission portion 16. It is important that the projecting structure 161 has an appropriate thickness. However, the base layer of the present invention is not meant to

have its thickness increased. Rather the base layer is justified to have a minimum necessary thickness that is required to have requisite conductivity and to connect carbon nanotube layer to the substrate. That is, the projecting structure 161 differs from the base layer in its purpose and therefore, the projecting structure 161 of Nakada is not structurally comparable to the base layer of the present invention.

Second, the projecting structure 161 has a trapezoidal shape in cross-section. This shape differs from the shape of the base layer having substantially vertical flank from the surface of the substrate, as shown in FIG. 2 of the present invention.

Third, Nakada discloses only "An enormous number of fine carbon nano-tubes 16a are erected on the surface of the electron emission portion 16." Nakada fails to disclose the carbon nanotube layer being provided on the base layer in a state substantially un-mixed with the base layer, as like Uemura.

The amendment of claim 1 is supported by the entirety of the figures and the related specification and including for example figures 2-4 and paragraphs 37-49.

2. With respect to Claim 24, the Examiner states that the claim is rejected over the reasons stated in the rejection of claim 1.

As mentioned above concerning claim 1, Nakada makes no specific disclosure as to the field

emission display. MPEP §2131 states specifically that the identical invention must be shown in as complete detail as is contained in the patent claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (CAFC 1989). Therefore, here since there is no specific disclosure of the field emission display, the exact invention is not disclosed. Further, “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970), and MPEP 2143.03. Therefore, the field emission display claimed cannot be ignored or generalized.

III. Claim Rejections - 35 USC § 103

According to MPEP 706.02(j), the following establishes a *prima facie* case of obviousness under 35 U.S.C. §103:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the

reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

A. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1), in view of Choi et al. (US 2001/0006232 A1). The Applicant respectfully traverses.

With respect to Claim 3, the Examiner states that Nakada is silent lacks the specific structure of the gate electrode disposed on a first substrate, but that Choi teaches a teaches that the gate electrodes as claimed. The Examiner further states that the motivation to combine would be to ensure easier manufacturing of such an FED device.

However, “Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability. *In re Dembiczak*, 175 F.3d 994, 50 USPQ.2d 1614 (Fed. Cir. 1999). The showing must be “clear and particular” without broad generalized conclusory statements. *Id.* There must be specific statements showing the scope of the suggestion, teaching, or motivation to combine the prior art references. *Id.* at 1000. There must be an explanation to what specific understanding or technical principle would have suggested the combination of references. *Id.* Respectfully, the motivation given by the examiner of “easier manufacturing” , is a broad generalized statement that

is not clear and particular and not from the references themselves.

B. Claims 5-6, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Uemura et al. (US 6239547 B1). The Applicant respectfully traverses.

With respect to Claims 5-6, 28-29, the Examiner indicates that Nakada is silent regarding the composition of the base layer, but that Uemura teaches that the base layer (conductive adhesive, 422) includes an adhesive material having conductivity selected from the group consisting of silver, nickel, aluminum, gold, cobalt, and iron (silver, Col. 7, lines 29-31). Therefore, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose from one of the materials disclosed by Uemura, since it has been held to be within the general skill of the worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

However, the citation from *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945), concerning general skill of a worker selecting a material is not a proper motivation. Moreover, the language of *Sinclair & Carroll Co. v. Interchemical Corp.* used by the Examiner was never intended to short-circuit the clear wording of 35 U.S.C. §103. A finding of obviousness must be based upon a determination of obviousness under section 103 and not upon a mechanical rule extracted from *Sinclair & Carroll Co. v. Interchemical Corp.* See *In re Wright*, 343 F.2d 761, 769-770, 145 USPQ 182, 190 (CCPA 1965). It is improper to use *per se* rules to sidestep

the fact-intensive inquiry mandated by section 103. *See In re Ochiai*, 71 F.3d 1565, 1570, 37 USPQ2d 1127, 1132 (Fed. Cir. 1995), *See also, Ex parte* Edwin G. Sawdon and Brian D. Petit , decision of the Board of Patent Appeals and Interferences, Patent No. 6,722,842 (Appeal No. 2003-0693, application no. 09/006,248), paper No. 34 , page 7. In addition the ruling of Sinclair is related to its fact concerning “Art Recognized Suitability for an Intended Purpose” as the title indicates and not necessarily concerning the present invention.

Therefore, again the motivation provided for the combination is improper.

C. Claims 7, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura et al. (US 6239547 B1). in view of Wada et al. (US 6525468 B1). The Applicant respectfully traverses.

With respect to Claims 7 and 30, the Examiner states that Uemura lacks an frit glass from the group consisting of PbO, SiO₂, Ba₂O₃, but that Wada teaches that the base layer comprises an adhesive material (paste, Col. 1, lines 57-64) realized through a glass frit that selected from the group consisting of PbO, SiO₂, Ba₂O₃ (Col. 1, lines 57-64), and a mixture thereof. Therefore, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose from one of the materials disclosed by Wade, since it has been held to be within the general skill of the worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

As stated above, to use a *per se* rule from of *Sinclair & Carroll Co. v. Interchemical Corp* would be an improper method sidestepping *Graham v. Deere* factual inquiries that must be made

under 35USC§103.

Therefore, Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability. *In re Dembiczak*, 175 F.3d 994, 50 USPQ.2d 1614 (Fed. Cir. 1999). The ruling from *Sinclair & Carroll Co. v. Interchemical Corp* is not an omnibus rule that can be applied to all cases to create a reason to combine. MPEP 706.02(j) specifically states that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, again the motivation to combine is improper and therefore, the combination of Uemura and Wada is not proper.

D. Claims 9-10, 15, 32-33, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1). in view of Uemura et al. (US 2003/0127965). The Applicant respectfully traverses.

1. With respect to Claim 9, the Examiner states that Nakada is silent regarding the diameter of the base layer particles, but that Uemura teaches that the base layer includes spherical particles with a diameter of 0.05 to 5 μm (Page 3, Par [0035]) in order to ensure sufficient fluidity (Page 3, Par [0035]), but that it would have been obvious to one of ordinary skill in the art, at the time of the

invention, to modify the particle diameter, as disclosed by Uemura, in the field emission display of Nakada and that the motivation to combine would be to in order to ensure sufficient fluidity.

However, the motivation of ensuring fluidity is not mentioned in either Uemura or Nakada and therefore, the Examiner is improperly using the Examiner's own knowledge in formulating a motivation which would be improper under MPEP 706.02(j).

2. With respect to Claim 10, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose from one of the materials disclosed by Uemura, since it has been held to be within the general skill of the worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

As stated above, using a *per se* rule to circumvent the determination of obviousness under section 103 is an improper motivation to combine.

3. With respect to Claim 15, the Examiner should not combine Uemura with Nakada as Nakada is teaching away from the claimed invention.

Claim states that the base layer has prominences and depressions. However, Nakada strongly states that the metal projecting structure 161 has a trapezoidal shape and goes on to indicate how a flat shape of the electron emission portion is advantageous and all the figures of Nakada shows clearly a flat shape for the base portion. Therefore, Nakada is teaching away from the claimed invention.

4. With respect to Claim 32, the Examiner states the motivation to combine the references would be to in order to ensure sufficient fluidity. As mentioned above, none of the references teaches such a motivation.

5. With respect to Claim 33, the Examiner again used an improper motivation of a *per se rule* as mentioned above.

6. With respect to Claim 38, as mentioned above, Uemura and Nakada should not combined concerning the prominences and depressions and the motivation of ensuring sufficient fluidity is improper as mentioned above.

E. Claims 14, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Lee et al. (US 2002/0175617 A1). The Applicant respectfully traverses.

1. With respect to Claims 14 and 37, the Examiner states that Nakada teaches the invention set forth above (see rejection in Claim 1 above). Nakada is silent regarding the thickness of the base layer. In the same field of endeavor, Lee teaches that the base layer (nanotube emitter layer, Figure 2, #52) is formed at a thickness of 0.05 to 5 μm (Page 3, Par [0016]), where the motivation to combine would be to ensure sufficient mechanical support of respective nanotubes.

However, Lee never mentions that the thickness is in order to ensure sufficient mechanical support of respective nanotubes. The Federal Circuit has mentioned that “[t]he test for obviousness

is not whether the features of one reference may be bodily incorporated into another reference...Rather, we look to see whether combined teachings render the claimed subject matter obvious.” *In re Wood*, 599 F.2d 1032, 202 USPQ 171, 174 (CCPA 1979) (citing *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549-50 (CCPA 1969); *In re Mapelsden*, 329 F.2d 321, 322, 141 USPQ 30, 32 (CCPA 1964).

Here, the Examiner is bodily incorporating one feature into another without an actual teaching or suggestion. Therefore, the rejection is improper.

F. Claims 8,11, 16, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Cole et al. (US 6919730 B2). The Applicant respectfully traverses.

1. With respect to Claim 8, the Examiner states that Nakada teaches the invention set forth above (see rejection in Claim 1 above). Nakada is silent regarding prominence and depressions of the base layer, and Cole teaches that of prominence and depressions on base layer (platforms, Col. 3, lines 17-27) in order to provide the ability to better control temperature response of a plurality of nanotubes to radiation. The Examiner states that it should be noted that the Cole's temperature sensor (235) acts as a baseline surface for providing the platform-sensor combination with respective depressions, therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to add the prominence and depressions of the base layer, as disclosed by Cole, in the field emission display of Nakada and the motivation to combine would be to provide the ability to

better control temperature response of a plurality of nanotubes to radiation.

However, Nakada is not silent as to prominences and depressions as Nakada clearly states that the portion 161 is to be trapezoidal and the emission portion is to be flat instead of having any prominences or depressions. Clearly, Nakada teaches away from the claimed invention and therefore, should not be combined with Cole.

2. With respect to Claims 11 and 16, the Examiner states that Nakada is silent regarding the dimensions of the prominence and depressions of the base layer, but that Cole teaches that the prominence and depressions at 0.05 to 10 μm width, 0.01 to 5 μm depth, and 1 to 20 μm intervals (Col. 3, lines 17-27) in order to provide the ability to better control temperature response of a plurality of nanotubes to radiation and it should be noted that the Cole's temperature sensor (235) acts as a baseline surface for providing the platform-sensor combination with respective depressions. Therefore, the Examiner states that it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the dimensions of the prominence and depressions of the base layer, as disclosed by Cole, in the field emission display of Nakada. Motivation to combine would be to provide the ability to better control temperature response of a plurality of nanotubes to radiation.

However, Cole does not mention the depth and therefore, the claim is not obvious.

In addition, the Ni islands are not included in the base layer as the thin film is included in the base layer.

G. Claims 12, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1) in view of Cole et al. (US 6919730 B2). with further consideration to Mau et al. (US 6866801 B1). The Applicant respectfully traverses.

The Examiner states that Nakada-Cole is silent regarding the composition of the prominence and depressions of the base layer, but that in the same field of endeavor, Mau teaches that the prominence and depressions are formed of indium thin oxide or chrome (Col. 2, lines 65-67 - Col. 3, lines 1-8) and therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to choose from one of the materials disclosed by Mau, since it has been held to be within the general skill of the worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

However, Cole is not *silent* as to composition of the prominences and depressions of the thin film. The Examiner specifically pointed to col. 3, lines 17-27 concerning the prominences and depressions which talks of a Ni island. Specifically the island is made of Nickel.

According to MPEP §2145, "It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). This portion of Cole specifically referred by the Examiner cannot be just ignored because according to MPEP §2141.02, "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)."

H. Claims 13, 17, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakada et al. (US 6455989 B1). in view of Lee et al. (2002/0175618 A1). The Applicant respectfully traverses.

1. The Examiner states that Nakada is silent the respective densities of the base layer and carbon nanotube layer, but that Lee teaches a carbon nanotube density of the carbon nanotube layer being greater than the carbon nanotube density of the base layer (Page 3, Par [0018]) in order to improve electron emission characteristics as the motivation to combine would be to improve electron emission characteristics.

However, paragraph 18 does not give such a teaching or suggestion as it only states of an undesirable effect due to her density carbon nanotubes. There is no reference to a comparison with the carbon nanotubes in the base layer and in the carbon nanotube layer.

Rather, both Nakada and Lee are teaching that there be no carbon nanotubes present on the conductive paste layer. However, a density comparison of 100 to 1,00,000 times does not mean that there is no contact at all, but that it is minimized. Nakada and Lee are then teaching away from the present invention.

2. Furthermore, the Examiner states that Nakada-Lee teaches the claimed invention except for the specific limitation of the carbon nanotube density of the carbon nanotube layer being "100 to 1,000,000 times" a carbon nanotube density of the base layer, however, it has been held that where

the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, and thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide carbon nanotube density of the carbon nanotube layer being "100 to 1,000,000 times" a carbon nanotube density of the base layer, since optimization of workable ranges is considered within the skill of the art. Further, one of ordinary skill in the art would entertain the idea of providing a substantially greater amount of the carbon nanotubes in the carbon nanotube layer in order to ensure sufficient emission of the field emission display.

However, it is clear that the combination of references fail to teach or suggest the claimed range of 100-1,000,000, the Examiner is then improperly resorting to a general conclusion to circumvent a proper 103 analysis. To simply state that a range is optimization fails to provide a *prima facie* case as no range of densities is ever provided by the Examiner. Again, the Examiner is circumventing *Graham v. Deere* factual inquiries and is imposing an improper rejection. MPEP 706.02(j) clearly states that the prior art reference (or references when combined) must teach or suggest **all the claim limitations**. Here, it is clear all the claimed limitations have not been taught or suggested. Respectfully, this is highly improper and the Applicant asks that such a rejection be removed.

In view of the foregoing amendments and remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. If there are any questions, the examiner is asked to contact the applicant's attorney.

No fee is incurred by this Amendment. Should there be a deficiency in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

Respectfully submitted,



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